TO 560 & EAS 595
Sustainable Operations and Supply Chain Management

Term: Winter (A) 2023

Thursdays, 6:30-9:30pm (R1230)

Instructor

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Technology & Operations Department
Ross School of Business
Biographical Information

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Office Hours: Virtual (TBD)

Ravi Anupindi is the Colonel William G. and Ann C. Svetlich Professor of Operations Research and Management at the Stephen M. Ross School of Business at the University of Michigan Ann Arbor. He serves as Chair of (UM) President’s Advisory Committee on Labor Standards and Human Rights. He was the founding Faculty Director of the Center for Value Chain Innovation and also served as Co-Director of the Technology and Business Innovation Forum at Ross. He is a Research Fellow at the William Davidson Institute and faculty associate with the Erb Institute, Sustainable Food Systems Initiative, Institute for Health Policy and Innovation, and GlobalREACH. He was the founding Faculty Director for the Ross Master of Supply Chain Management program from 2008-2015. He was a visiting scholar at the Graduate School of Business, Stanford University (Fall 2010) and at the Indian School of Business, Hyderabad, India (Winter 2011). Prior to joining the University of Michigan in 2002, he taught at the Stern School of Business, New York University (2000-2002) and the Kellogg Graduate School of Management, Northwestern University (1993-2000).

At the Ross school he has taught the Operations Management (core) and Strategic Sourcing (elective). Currently he teaches classes in Global Supply Chain Management; Innovations in Global Health Delivery; and Sustainable Operations and Supply Chain Management. He also teaches in several executive education programs. He was the director of the Leadership in Plant Operations program for executives. He has done custom programs for Dell, GE Energy, Schlumberger, USG Corporation, and Wilson Sporting Goods. He has also worked with several companies on supply chain issues including sourcing, visibility and traceability issues in supply chain and new product launch processes.

His main research areas include technology and business innovation, global supply chain management, health care delivery in low and middle-income countries, economic development, and environmental & social sustainability. His work has appeared in several leading academic journals including Management Science, Operations Research, Journal of MSOM, Marketing Science, and Proceedings of the National Academy of Sciences. He serves on the editorial boards of a number of leading journals. He is the co-author of a textbook, Managing Business Process Flows (3rd Edition), Prentice Hall, 2011. He has also authored several case studies in sustainability, healthcare delivery in low & middle income countries, and supply chain risk management. Under a USAID grant, he has assisted University of Johannesburg, South Africa develop a graduate degree program in Supply Chain Management.

Ravi is recipient the Ross School of Business Neary Teaching Excellence Award (2019), Victor L. Bernard Teaching Leadership Award (2019), and the CORE (Contribution to Research Environment) Award (2015). He was recognized as P&Q’s Favorite MBA Professors from the Class of 2020. He is a member of the Institute for Operations Research and Management Science (INFORMS), Council for Supply Chain Management Professionals (CSCMP), Institute for Supply Management (ISM), and the Supply Chain Thought Leaders (SCTL) group. He serves on the Governing Council of the Supply Chain Risk Leadership Council (SCRLC). He serves on the Board of Global Health of the National Academy of Sciences, Engineering, and Medicine; is a member of the boards of the William Davidson Institute, the Fair Labor Association, Every Infant Matters Partners, and ProjectStanley; a founding board member of the People that Deliver Initiative; and a technical advisor to Vital Ocean.


**COURSE OVERVIEW**

Firms face increasing pressure from activists, investors, and customers to reduce the environmental impacts of their operations and supply chains as well as uphold basic human rights and labor standards for the people who produce the materials / components / products. At the same time, using a sustainability lens to study its operations and supply chain, a firm can identify new opportunities for improving efficiency and innovation. Further sustainability (environmental / social) as an artifact has to combined with a discussion of responsibility. That is, how is responsibility (for ensuring sustainability) apportioned across the extended value chain that includes the end consumers? This course examines how to design and manage environmentally and socially responsible operations and supply chains.

Specific learning objectives for this course are:

- Develop an in-depth understanding of the key issues in designing and managing environmentally and socially responsible operations.
- Develop a critical understanding of the various environmental sustainability frameworks.
- Understand different metrics and tools to measure sustainability performance.
- Understand the multiple ways a firm can reduce its environmental impact.
- Learn how organizational structure affects a firm’s approach to sustainability.
- Understand the unique challenges of managing upstream supply chains including building traceability, engaging suppliers, and improving capability.
- Understand the unique challenges of designing and managing reverse (post-consumer) supply chains.
- Learn the critical role of a firm’s own internal management practices and its impact on the supply chain.
- Understand the challenges of scaling a sustainability initiative across an industry sector.
- Develop an appreciation for the need to take multi-stakeholder (activist, NGOs, government) & (same-sector, cross-sector, public-private) partnership approach to improving environmental and social performance.
- Understand the role of regulation.
- Understand the unique challenges of ensuring environmentally / socially responsible performance in a global (transnational) supply chain.
- Develop a deep understanding of the current dominant logic for ensuring labor standards and human rights and its failings and learn new approaches to ensure social responsibility in global supply chains.
- Learn how new technologies can be deployed to improve sustainability performance.
- Understand how sustainability can be a key driver of innovation.

**CASE/READING PACKET AND TEXT**

The course will be delivered through a combination of cases and lectures. All the readings and cases are contained in the case packet and will be supplemented by class lectures. The following materials will be used for the course:

**REQUIRED:** Course pack: cases and readings.

A detailed list of specific readings for each session is included in the syllabus/class plan (described later in the document).
**GRADING**

The grade for the course will be determined based on performance on (1) Major case submission; (2) short submissions; (3) In-class contribution, and (4) Final Project. The course grade will be based on the following scheme:

<table>
<thead>
<tr>
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<th>Percentage</th>
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<tbody>
<tr>
<td>Major case submission</td>
<td>20%</td>
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<tr>
<td>Short submissions (4 out of 8-9 possible)</td>
<td>20%</td>
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<tr>
<td>In-Class Contribution</td>
<td>30%</td>
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<tr>
<td>Final Term Paper</td>
<td>30%</td>
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Class discussion will be based on the cases or other readings assigned for each class. Given the mix of students in this class coming from different programs, I will assign students into groups.

**MAJOR GROUP SUBMISSION: CASE WRITE-UP (20%)**

I have scheduled ONE group case submission. The report is graded for both content and presentation. Detailed guidelines about the case submission appear on Canvas for the appropriate session.

Reports should be typed with 1.10 line-spacing and should not exceed 3000 words excluding appendices and exhibits. Exhibits appended to the reports need not be typed, but should be neat and easy to understand. As per the honor code, an individual should include his/her name on a report only if they have contributed to the analysis.

**SHORT SUBMISSIONS (20%)**

Throughout the course we will discuss several cases. I expect that you prepare each of these cases before coming to class. I have outlined suggested questions for discussion. Please prepare a short write-up (1-2 pages), individually, giving your thoughts on the suggested questions. The objective in seeking this short submission is to ensure that you have put in an honest effort to prepare the case. All we are looking for from this short write-up is that you have given sufficient thought to the question and discussed all relevant issues. Consequently there will be very coarse grading for these assignments at three levels: check+, check, and check-, most write-ups receiving a “check”. A few pointers:

- You will do the write-ups individually and post it on Canvas in the “Assignments” section before the start of class in which the case is scheduled to be discussed. If you do not have access to Canvas at the time, you may bring a hard copy to class. No late submissions will be permitted.
- Please make sure to put your name on the submission and also add your name to the filename before posting.
- There are a total of 8-9 possible short submissions; I will take the FOUR best submissions towards your grade.
- Regardless of whether you choose not to submit a writeup for a case, I expect that you would have prepared that case for class discussion.

**FINAL GROUP PROJECT / TERM PAPER (30%)**
**Final (group) project:** I will discuss some possibilities for a term paper in class. The final report should be no more than 5000 words plus any charts/tables and references.

**IN-CLASS / ON-LINE CONTRIBUTION (30%)**

In a typical class session, one or more students will be asked to begin discussion of a selected topic. The following criteria will be used to judge effective class participation:

- Is the participant a good listener?
- Relevance of points made to the discussion?
- Are the points made linked to the comments of others? Do comments clarify and highlight important aspects of earlier comments and lead to a clearer statement of the concepts being covered?
- Do the comments show clear evidence of appropriate and insightful analysis of the case data?
- Is there a willingness to test new ideas, or all comments "safe"?

To expand the options for class participation, I am making available a post-class online discussion option. Under "Discussions" menu (see left pane on Canvas site), you will see prompts for each of the classes. Participation here will count towards your overall class participation grade. There is one discussion thread for each class. Try and keep our comments to points relevant to that class.

**Peer review:** At the end of the semester peer-review will be used to further evaluate group submissions.

**CANVAS**

I have created a Canvas site for the class titled “TO 560 001 451 and EAS 595 WN 2022”. Please bookmark this site.

**ROSS COMMITMENT TO LEARNING:** PLEASE REFER TO COURSE CANVAS SITE

**ACADEMIC HONOR CODE / COMMUNITY VALUES:** PLEASE REFER TO COURSE CANVAS SITE

**ACCOMODATIONS / WELLNESS / MENTAL HEALTH:** PLEASE REFER TO COURSE CANVAS SITE

**STUDENT INFORMATION FORM**

Please download a student information form (Canvas -> Files -> Syllabus+Etc), fill it out giving information about yourself, and submit an electronic copy to Canvas Assignment section. Before posting, however, please make sure to add your last name to the file name.
SOME SUGGESTED READINGS

[Here a collection of some books that you may find interesting reads in your sustainability journey. They are not necessarily about sustainable operations / supply chains, however. None of these are required readings for this course.]

## Deliverables

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Individual / Group</th>
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<tbody>
<tr>
<td>Jan 12</td>
<td><em>Sustainability at Millipore</em></td>
<td>Individual*</td>
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</table>
| Jan 19 | **Cook Composites and Polymers Co.** Gotong Royong: Toward Sustainable Palm Oil  
**Guest Speaker (virtual): Prof Joann de Zegher, Founder / CEO of pem pem io** | Individual*            |
| Jan 26 | **Michigan Dining: 20% Local by 2025.** **Wal-Mart’s Sustainability Strategy** | Individual*            |
| Jan 27 | **Project Proposal (submit on canvas)**                                     | Group Submission       |
| Feb 2  | **Voluntary Producer Responsibility for poly-coated packaging recycling**   | Individual*            |
|        | **(Guest speaker: Jim Frey, CEO, Resource Recycling Systems)**               |                        |
|        | **Dell: Upcycling Ocean Plastics Through Supply Chain Innovation**           | Individual*            |
| Feb 9  | **Rana Plaza: Workplace Safety in Bangladesh (A)**  
**An iPhone Tester Caught in Apple’s supply chain** | Individual*            |
| Feb 16 | **SkySpecs: A New Horizon for Wind Energy**  
**(Guest Speaker: Danny Ellis, CEO, SkySpecs)**  
**Scaling Sustainability Initiatives; Wrap Up** | Individual*            |
| Feb 23 (TBC) | **FINAL PROJECT REPORTS DUE;**                                             | Group Submission       |

- There are a total of 9 possible individual short-submission opportunities. You need to submit at least 4 write-ups. Your grade for this portion of evaluation is based on the best four (should you choose to submit more than 4 write ups).

In the detailed syllabus:
- Readings are listed as [R##] or [C]. The prefix R in [R##] refers to the readings packet (study.net) and ## refers to the sequence #. The label [C] suggests that the reading is available on canvas in the appropriate folder for that session.
- Additional (relevant but optional) readings, not listed in the detailed syllabus, will be posted on canvas in the appropriate folder.
# WEEK 1  Introduction / Sustainability Frameworks / Sustainability within the firm  January 12, 2023

### Session 1  Introduction

**Objective:**
The purpose of this week is to understand the importance of sustainability, what is sustainability in operations / supply chain, explore various frameworks, and illustrate these through sustainability initiatives within a firm.

**Read:**
- [R2] Why Sustainability Is Now the Key Driver of Innovation, HBR, Sept 2009

### Supplementary Reading:
- [C] Why Sustainability is no longer a choice by Paul Polman, CEO of Unilever.
- [C] Sustainability Toolbox: Global Supply Chain, Erb Institute at the University of Michigan.
- [C] Companies Face Pressure to Improve Environmental Sustainability in Supply Chain, *WSJ*, Oct 2022

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# WEEK 2  Defining, Designing, and Managing Sustainable Supply Chains  January 19, 2023

### Session 2  Sustainability within the firm

**Prepare & Short Submission:**
- [R1] Case: Sustainability at Millipore (HBS Case 610-012). Consider the following questions for discussion and submit an individual write up (on Canvas) answering ONLY the italicized question(s):
  1. Do you think the Sustainability Initiative’s focus on environmental rather than social issues is appropriate?
  2. How should Millipore prioritize projects for the Sustainability Initiative?
  3. What factors should Millipore consider when setting its next greenhouse gas reduction target? Recall that key parameters include the choice of an absolute or a relative reduction, a percentage reduction target, its duration, and the scope of emissions covered.
  4. Considering the pros and cons, should Millipore purchase carbon offsets as part of its strategy to meet its greenhouse gas reduction objectives?
  5. Should Millipore continue to respond to the Carbon Disclosure Project’s annual questionnaires, given the risks of doing so?
  6. What changes, if any, would you recommend to David Newman to improve the Sustainability Initiative?

**Supplementary Reading:**
- [R3] Are Corporate Carbon Intensity Targets Greenwash?
### Prepare & Short Submission: 

**[R4]** Cook Composites and Polymers Co., HBSP 9-608-055. Consider the following questions for discussion and submit an individual write up (on Canvas) answering ONLY the italicized question(s):

Cook Composites & Polymers faces three options for addressing its rinse styrene waste stream: (a) Continue with business-as-usual, sending its rinse styrene to cement kilns; (b) Sell its rinse styrene on a waste exchange; or (c) Proceed with developing the concrete coating that uses its rinse styrene (BPS).

1. **What criteria should Mike Gromacki consider when deciding whether to pursue the waste exchange or the concrete-coating by-product?** If you’re Mike Gromacki, what would you recommend to management to address its rinse styrene waste stream?

2. Compared to business as usual, how would selling rinse styrene to a waste exchange or producing the concrete coating by-product affect the production of gel coats? Assume that the gel coat production process is operating at capacity.

3. Compared to business as usual, what are the financial implications of selling rinse styrene to a waste exchange or of producing the concrete coating by-product (BPS)?

4. What is the environmental impact of implementing BPS? Consider just the impact on carbon-dioxide (CO2) emissions. Note that diverting 1 pound of styrene from cement kiln disposal to reuse in concrete coating increases the kiln’s emissions by 1.2 pounds CO2. Producing concrete coating with 1 pound of rinse styrene emits 1.9 fewer pounds CO2 than conventional production of the same amount of concrete coating. Producing one pound of styrene results in 2.5 pounds of CO2 emissions.

### Read: 

**[R5]** Carbon Footprints: Methods and Calculations,” HBS Note 611-075, 2011.

### Supplementary Reading: 


**[C]** Towards a circular economy (vol. 3), Accelerating the scale-up across global supply chains. Ellen MacArthur Foundation.

### Session 4

**Managing Sustainable Supply Chains: Sourcing & Food Systems**

**Objective:** In this session we explore (environmental) sustainability issues within a firm’s extended supply chain, going upstream to its supply base.

### Prepare & Short Submission: 

**[R7]** Gotong Royong: Toward Sustainable Palm Oil; HBS 907-414. Consider the following questions for discussion and submit an individual write up (on Canvas) answering ONLY the italicized question(s):

1. **Identify the different “stakeholders & influencers” and their perspectives / interests in the palm oil supply chain extending from farms to products with a critical analysis of alignment/mis-alignment among them impacting progress towards sustainable palm oil.**
2. What is your (critical) assessment of the role RSPO plays in ensuring sustainability in Palm Oil? How do the different stakeholders perceive RSPO and the value it brings to them, if at all?

**Guest Speaker**
(virtual): Prof Joann de Zegher, Founder / CEO of pem pem.io

**Supplementary Reading:**
- [C] RSPO Supply Chain Systems Overview (rspo_fact_sheets_systems.pdf)
- [C] Palm Oil Was Supposed to Help Save the Planet. Instead It Unleashed a Catastrophe (NYTimes)
- [C] The Chain - Lack of Palm Oil Traceability Contributing to Deforestation in Sumatran National Parks
- [C] Greenwash - How the RSPO fails to uphold its own rules
- [C] Sustainable Palm Oil is Possible - Here's How, Palladium - Jun 29 2018
- [C] The Financing of Leakage Refiners

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### WEEK 3  Managing Sustainable Supply Chain  January 26, 2023

**Session 5**  Managing Sustainable Supply Chains: Local Food Systems

**Objective:**
*We continue our exploration of sustainability in supply chains with challenges of sourcing local food and role of large institutions like the University of Michigan.*

**Read:**
[R8] Why Local Food Sourcing is so hard for restaurants. HBR. June 2016.

**Prepare:**
[R9] *Michigan Dining: 20% Local by 2025* (WDI Publishing 3-58-9225). Consider the following questions for discussion and submit an individual write up (on Canvas) answering ONLY the italicized question(s):

1. What is sustainable food? What is local? Why this sudden fascination for local and sustainable? Does local imply sustainable?
2. What do you think of the food purchasing goals and the sustainable food purchasing guidelines of the University of Michigan? Why did the university adopt these goals?
3. *What is Michigan Dining doing to meet these goals? What are some challenges it faces meeting these goals? Consider perspective of different stakeholders.*
4. Looking at the local food ecosystem, what do you see as barriers for local producers to sell to institutional buyers like the University of Michigan? How should these gaps be filled?
5. While Michigan Dining has made good progress towards its goal, the rest of the University seems lagging. What should the University do to get the other units to move towards its food purchasing goals?

**Session 6**  Managing Sustainable Supply Chains: Sustainable Value Networks

**Objective:**
*Using the Walmart case, we explore how a firm could take a comprehensive approach to sustainability; evaluate the unique challenges of engaging in different value networks and explore strategies for supplier engagement.*
### Major Submission (Group):


### Supplementary Reading:

- [C] Walmart adds science-based targets to supply chain financing option
- [C] McCormick & Co Partners to Offer Suppliers Sustainability-Linked Financing
- [C] Sustainable Procurement Barometer 2021 – A report by Stanford GSB and Ecovadis

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**WEEK 4**

**Post-Consumer Flows**

**Session 7**

**Post-Consumer Flows: Packaging in US**

**Objective:**

*We continue our exploration of post-consumer issues of recycling/reuse/remanufacturing and design of appropriate reverse supply chains using the case of carton recycling in the unregulated landscape of the United States. If time permits, we will briefly present the challenge of plastics waste management.*

**Prepare & Short Submission:**

[R14] *Voluntary Producer Responsibility for poly-coated packaging recycling* (WDI Publishing 1-429-338). Consider the following questions for discussion and submit an individual write up (on Canvas) answering ONLY the italicized question(s):

1. Why did Alan Murray want to focus on carton recycling access in the US? Why was the fiercely competitive packaging manufacturing industry interested in working together on recycling?
2. *Describe the carton recycling supply chain (before CCNA intervention) and identify reasons why cartons were not being recycled. How did CCNA help rebuild the reverse supply chain?*
3. How should CCNA address recycling access issues in more dispersed communities so as to be able to achieve and exceed its target of 60% recycling access rate?
4. *Should CCNA be expanded to include other materials? Other stakeholders, e.g., brands? Why or Why not?*
5. How would EPR (extended producer responsibility) impact the VPR system?

**Guest Speaker:**

Jim Frey, Founder / CEO, Resource Recycling Systems

**Read**

[R13] Getting to Grips with Take Back Laws (IIR045-PDF-ENG)

**Supplementary Reading:**

- [C] *Product Stewardship and Extended Producer Responsibility*
- [C] Maine Will Make Companies Pay for Recycling

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**Session 8**

**Post-Consumer Flows: Plastics**

**Objective:**

*We switch directions and go further downstream in the supply chain to the post-consumer phase. We begin exploration of post-consumer issues of recycling/reuse/remanufacturing and design of appropriate reverse supply chains, impact of regulation, etc. We begin to illustrate these issues using examples from plastics and, if time permits, eWaste*

**Prepare & Short Submission:**

[R11] *Dell: Upcycling Ocean Plastics Through Supply Chain Innovation*, WDI Publishing (7-949-121). Consider the following questions for discussion and submit an individual write up (on Canvas) answering ONLY the italicized question(s):
1. **What is the business case for Dell entering the ocean plastics space? Is Dell’s approach capable of delivering additionality?** Continuity of supply and local economic factors were introduced as risks in the case. What other risks are associated with Dell’s ocean plastics strategy?

2. How should the consortium be structured? What leadership role, if any, should Dell take? Should Dell invite competitors into the consortium? What are the risks associated with doing so?

3. Who should be responsible for certification of the supply chain? What are the risks and benefits associated with the strategies of third-party certification and NGO-led, Dell-led, shared consortium responsibility?

4. How should Dell approach its future use case strategy? Should Dell consider consumer-facing products? Should Dell’s open source strategy extend to its R&D on ocean plastics products or packaging?


Supplementary Reading:
- [C] 2016 Annual report of International Coastal Cleanup, Ocean Conservancy
- [C] TerraCycle Partners Including Coca-Cola, P&G to Change Recycling Labels After Settling Lawsuit - WSJ
- [C] Review Cradle to Cradle Certification
- [C] Newsom signs nation’s most sweeping law to phase out single-use plastics and packaging waste

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**WEEK 5**

**Social Responsibility in Supply Chains**

**February 9, 2023**

**Session 10**

**Social Responsibility in Supply Chains**

**Objective:** While social issues have come up briefly earlier in the class, we now dedicate a session to explore challenges of upholding labor standards and human rights in globally extended supply chains.

**Prepare & Short Submission:** [R15] *Rana Plaza: Workplace Safety in Bangladesh (A)*. Consider the following questions for discussion and submit an individual write up (on Canvas) answering ONLY the italicized question(s):

1. Why did the tragedy occur?
2. What needs to be done?

Read:
- [C] Conversations with Joe Bozich, CEO of Knights Apparel (video). This interview, recorded in 2013, relates to Alta Gracia – a division of Knights Apparel – that pays a living wage to its workers in a garment factory in the Dominican Republic. In 2015 Knights Apparel was acquired by Hanes Brands; Alta Gracia is an independent company.

**Session 11**

**Social Responsibility in Supply Chains**

**Prepare & Short Submission:** [R16] “An iPhone Tester Caught in Apple’s supply chain”, *Business Week*, Nov 2013. Consider the following questions for discussion and submit an individual write up (on Canvas) answering ONLY the italicized question(s):
1. **Who do you hold responsible for the migrant labor issue this story raises? What steps can be taken and by who to minimize the occurrence of such issues in the future?**

**Read:**

- [C] Agarwal, D., R. Anupindi, and S. Ansett, *A Road Map to a Responsible and Resilient Global Apparel Value Chain*
- [C] Park, J. and Wooke, R., *Approaches to Assessing Corporate Performance on Socially Responsible Operations*

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<tr>
<th>WEEK 6</th>
<th>Role of Technology + Scaling Initiatives + Wrap UP</th>
<th>February 16, 2023</th>
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<tr>
<td>Session 11</td>
<td>Role of Technology in Sustainability</td>
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<td><strong>Objective:</strong></td>
<td>We discuss how innovative technology (e.g., drones) can be used to improve sustainability performance taking the example of wind energy systems</td>
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<td><strong>Prepare &amp; Short Submission:</strong></td>
<td>[R17] <em>SkySpecs: A New Horizon for Wind Energy.</em> Consider the following questions for discussion and submit an individual write up (on Canvas) answering ONLY the italicized question(s):</td>
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<td>1. Describe the stakeholders in a wind energy business. What are the challenges of managing wind energy operations? How important is maintenance and repair to the efficiency of wind energy operations?</td>
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<td>2. What business is SkySpecs in? How does SkySpecs add value to wind turbine maintenance and operations? What are its core capabilities?</td>
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<td>3. Should SkySpecs take its capabilities and enter new markets? If so, is SkySpecs better positioned to expand via the depth or breadth strategy? Which opportunity (or multiple opportunities) should it pursue? Defend your argument.</td>
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<td>4. What capabilities/components would SkySpecs need to develop or acquire to pursue each expansion opportunity (or multiple opportunities)?</td>
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<td><strong>Read:</strong></td>
<td>[R18] <em>Eye in the Sky: A Study of the Commercial Drone Ecosystem.</em></td>
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| Session 12 | Scaling Sustainability Initiatives & Wrap Up |
| **Objective:** | We conclude with a discussion of the challenges of scaling sustainability initiatives, using examples from textiles, recyclables, and other industries. |
| **Read:** | [C] *The Detox Catwalk Explained.* Greenpeace. |
| | [C] *The environmental costs of creating clothes,* The Economist |
| | [C] *The Sustainable Apparel Coalition and the Higgs Index.* |